

toward a center region that is defined by a third radius extending from said center of origin, said first and said second radii being greater than said third radius.

17. A method for optimizing a shape of a cooling hole in a component for a gas turbine engine comprising:

- (a) defining a plurality of fixed input parameters;
- (b) defining a variable set of input parameters comprising a plurality of radii used to define a shape of the cooling hole;
- (c) generating a model of the component that includes at least one cooling hole having a shape defined by the parameters set forth in steps (a)-(c);
- (d) analyzing the model; and
- (e) modifying the plurality of radii as needed to optimize the shape of the cooling hole based on the analysis of step (d).

18. The method according to claim **17** wherein the component includes a first outer surface and a second outer surface separated from the first outer surface by a thickness, and including the steps of forming the cooling hole to extend through a body of the component from the first outer surface to the second outer surface, defining a first opening of the cooling hole to the first outer surface, and defining a second opening to the second outer surface where the first opening has a bi-lobed shape.

19. The method according to claim **18** including the step of forming the second opening to have a circular shape.

20. The method according to claim **18** wherein the component comprises an airfoil.

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